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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/573,181

03/23/2006

Michel Koskas

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Michel Koskas
Societe KoDe
63, rue de la Colonie
Paris, 75013
FRANCE

EXAMINER

QUADER, FAZLUL

ART UNIT

PAPER NUMBER

2164

MAIL DATE

DELIVERY MODE

07/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/573,181

Applicant(s)

KOSKAS, MICHEL

Examiner

FAZLUL QUADER

Art Unit

2164

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Claims 6-11 *are* pending in this application.
2. Examiner acknowledges applicant's amendment on 04/08/2008.
3. Claims 1-5 have been cancelled by the applicant.
4. Claims 6-11 have been newly added on 04/08/2008.
5. Applicant's arguments filed 04/08/2008, with respect to claims 6-11 have been fully considered but they are not persuasive, for examiner's response see discussion below.

Claim Objections

6. Claim 6, line 1 recites "database to be used", is not a positively recited, which makes the limitations that follows intended use and would give those limitations any patentable. Proper correction is required.
7. Claim 6, line 10 recites "sequence of its values", the word "its" is indefinite. Proper correction is needed.

8. As the claims 4 and 5 have been cancelled by the applicant, the objections to claims 4 and 5 are being withdrawn.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 6-11 of the current application (effective filing date: Mar. 23, 2006) are rejected under 35 U.S.C. 103(a) as being unpatentable over Elie Koskas (US 20020095421; pub. date: Jul. 18, 2002), hereinafter "Elie", in view of Tal et al. (US 20020143747; pub. date: Oct. 03, 2002) hereinafter "Tal".

11. Claims 1-5 have been cancelled by the applicant.

12. As for claim 6, Elie discloses a process of organizing a relational database to be used on a computer architecture comprised of at least a processor and some memory (Elie: [0001]; [0077]), the process comprising:

providing a table of hierarchical expansion, the table including at least one column and at least one primary key, wherein each line of the table has a line index (Elie: fig. 25, "Row-ID"; [0087]; [0270]);

creating a thesaurus for each column of the table (Elie: [0270]);

determining a set of line indices for each word of each of the thesauruses, wherein the set of line indices is comprised of each line index of the line at which the word appears in the table (Elie: [0022], "row identifiers" are line indices) ;

creating a radix tree comprised of the set of line indices for each word of each of the thesauruses (Elie: [0309]; binary tree is a type of radix tree); and

storing for each of the at least one primary keys: both a sequence of its values and a permutation on the set of values to find a given value (Elie: [0022]-[0024]).

Although, Elie discloses, creating a binary tree comprised of the set of line indices for each word of each of the thesauruses (Elie: [0309]), Elie, however, does not explicitly disclose "radix-tree structure".

Tal, on the other hand, explicitly discloses creation of "radix-tree" (Tal: [0001]).

Both Elie and Tal are of the same field of endeavor, they specifically teach system and method of content management (Elie: [0001]; Tal: abstract).

It would have been obvious to one of the ordinary skill in the art at the time of applicant's invention to incorporate the teachings of Tal into Elie of "methods of organizing data and processing queries in a database system, and database system and software product for implementing such methods" that would have allowed users of Elie to have an useful system for storing and retrieving data using a radix-search tree having a plurality of sub-trees containing nodes and leaves, the system including: (a) a data storage module designed and configured for storing the plurality of sub-trees, wherein at least one of the leaves contains at least one entry having at least one wildcard in a primary position, and (b) a processor that is operative to perform operations including: building the radix-search tree in the data storage module (Tal: [0029]).

13. As for claim 7, Elie as modified discloses the process of Claim 6, further comprising splitting tables of the database in a set of sub-tables, wherein each sub-table comprises a given number of lines, wherein the last line is excepted (Elie: abstract; [0301]; [0303]; [0305]; [0448]).

14. As for claim 8, Elie as modified discloses the process of Claim 6,

characterized in that the database is requested using SQL (Structured Query Language) (Elie: [0296]).

15. As for claim 9, Elie as modified discloses the process of Claim 6, further comprising:

computing an expansion table to solve a where clause (Elie: abstract; [0298]); and a select clause (Elie: abstract; [0425]);

solving the where clause by examining the columns of the expansion table (Elie: [0298]; [0301]) ;

solving the select clause by examining an un-reversed image of the columns (Elie: [0425]).

16. As for claim 10, Elie as modified discloses the process of Claim 6, further comprising assigning a common value to each entry of the table that is empty (Elie: [0115]).

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17. As for claim 11, Elie as modified discloses the process of Claim 10, further comprising creating a radix tree comprised of the set of line indices for each empty entry of the table (Elie: [0252]; [0265]; Tal, [0001]).

Prior art made of record

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cardona (US 20020169762) teach system and method for database retrieval, indexing and statistical analysis.

Baily et al. (US 20020087558) teach rapidly database system facilitating parametric searching.

Response to Arguments

19. Applicant's arguments filed 04/08/2008, with respect to claims 6-11 have been fully considered but they are not persuasive, for examiner's response see discussion below.

The Applicant has cancelled Claims 1-5 and added new claims 6-11. Thus, Claims 6-11 are currently pending.

The Applicant has amended the Specification to place it into conformance with U.S. Rules of Practice. Entry into the official file is respectfully requested.

Applicant's arguments: Claims 4 and 5 stand objected under 37 C.F.R. 1.75(c) as being in improper form for being a multiple dependent claim depending on another multiple dependent claim. Claims 4 and 5 are herein cancelled. The Applicant accordingly requests withdrawal of the objection.

Examiner's response: As the claims 4 and 5 have been cancelled by the applicant, the objections to claims 4 and 5 are being withdrawn.

Applicant's arguments: Independent Claim 6 recites a process for organization of a relational database. The process includes "providing a table of hierarchical expansion, the table including at least one column and at least one primary key, wherein each line of the table has a line index." Claim 6 further recites "creating a thesaurus for each column of the table" and "determining a set of line indices for each word of each of the thesauruses, wherein the set of line indices is comprised of each line index of the line at which the word appears in the table." A radix tree comprised of the set of line indices for each word of each of the thesauruses is created. The process of Claim 6 further includes "storing both a sequence of its values and a permutation on the set of values" for each of the at

least one primary keys. Emmick is directed to representation of content graphs in a relational database by defining nodes and edges of content structures as entities in the database. Emmick, with reference to Figure 4 and paragraph 56, teaches the conversion of a document represented by a table of contents into relational tables. The table of contents may be represented by a graph composed of nodes and edges. In the graph representation, the nodes correspond to content and structure of the table of contents, while the edges represent the relationship of titles in the table of contents. Information related to the nodes forms one relational table, and information related to the edges forms a second relational table. Papier is directed to organization of characteristics, hypotheses, and their relationship to one another in a form of a database. The database may be used as a diagnostic aid. A knowledge database, formed of multiple relational tables, is the basis of Papier's diagnoses system. The multiple relational tables represent various icons, text, and images. The knowledge base is used to translate user selections into queries and outputs: (Paragraph 66). Examples of relational tables are shown in Figure 4. The rejection references the synonym table, the relationship table, and the term table, described in paragraphs 78-80 of Papier. The synonym relational table includes professional terms, lay terms, and foreign language terms. The synonym table is a meta-dictionary/thesaurus that accommodates multiple versions of an end user application. The relationship table is used to create a network of concepts to allow for searching in hierarchical trees. In the term table, concepts are associated with associated terms and

synonyms to facilitate natural language processing of words within the end user tool and database.

Examiner's arguments: Two new references have been cited that read on the newly added claims. As stated earlier, Elie discloses a process of organizing a relational database to be used on a computer architecture comprised of at least a processor and some memory (Elie: [0001]; [0077]), the process comprising: providing a table of hierarchical expansion, the table including at least one column and at least one primary key, wherein each line of the table has a line index (Elie: fig. 25, "Row-ID"; [0087]; [0270]); creating a thesaurus for each column of the table (Elie: [0270]); determining a set of line indices for each word of each of the thesauruses, wherein the set of line indices is comprised of each line index of the line at which the word appears in the table (Elie: [0022], "row identifiers" are line indices) ; creating a radix tree comprised of the set of line indices for each word of each of the thesauruses (Elie: [0309]; binary tree is a type of radix tree); and storing for each of the at least one primary keys: both a sequence of its values and a permutation on the set of values to find a given value (Elie: [0022]-[0024]). Although, Elie discloses, creating a binary tree comprised of the set of line indices for each word of each of the thesauruses (Elie: [0309]), Elie, however, does not explicitly disclose "radix-tree structure". Tal, on the other hand, explicitly discloses creation of "radix-tree" (Tal: [0001]).

Applicant's arguments: However, neither Emmick nor Papier teach organization of a relational database as recited in independent Claim 6. While Papier discloses a synonym table that is used as a thesaurus for a diagnosis to01, Papier does not disclose determining a set of line indices for each word of the thesaurus, the set including each line index of the line at which the word appears. As the set of line indices is nottaught by Papier, Papier also cannot and does not teach using the set of line indices to create a radix tree. In fact, Papier does not disclose any type of radix tree whatsoever. Papier teaches a table that creates a network of concepts and a table that associates terms, but there is no disclosure of a radix tree for the network or association described by Papier. Emmick, as acknowledge in the Rejection, is also silent on the creation of the radix tree as defined by Claim 6.

Examiner's response: Same response as above.

Applicant's arguments: Additionally, neither Emmick nor Papier teaches storing, for each of the primary keys, a sequence of its values and a permutation on the set of values. Emmick discloses use of the Dublin core to form a quick physical index scheme but nowhere discloses a sequence of primary key values and a permutation of those values, used to find a given value, as recited in Claim 6.

Examiner's response: As stated earlier, Elie discloses, storing for each of the at least one primary keys: both a sequence of its values and a permutation on the set of values to find a given value (Elie: abstract; [0022]-[0024]; typical of SQL data structure).

Conclusion

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Contact Information

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FAZLUL QUADER whose telephone number is (571)270-1905. The examiner can normally be reached on M-F 8-5 Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on 571-272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/FAZLUL QUADER/
Examiner
Art Unit 2164

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FQ

/Charles Rones/

Supervisory Patent Examiner, Art Unit 2164